REMARKS

Election / Restrictions

Applicants appreciate the withdrawal of the restriction and examination of all claims.

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Claim Rejections – 35 USC § 101

Without prejudice to any future or related patent applications, the preambles of independent method claim 1 and independent apparatus claim 38 are now amended to recite

10 "automating the identification of meaningful features and the formulation of expert rules for classifying magnetocardiography data." Additionally, the final recitation in each of these claims is now amended to specify "identifying said meaningful features and formulating said expert rules from said transformed

15 data, using machine learning."

This overcomes the 35 USC § 101 rejection that the claimed invention purportedly "does not transform an article or physical object to a different state or thing; or otherwise produce a useful, concrete and tangible result." The "useful, concrete

20 and tangible result" clearly recited is that one takes sensed magnetic data acquired from the patient's heart activity, identifies "meaningful features" in that data, and from that, formulates "expert rules for classifying magnetocardiography data." Such expert rules then have highly practical, indeed

essential application for rendering cardiac diagnoses on the basis of magnetocardiography readings of patent heart activity. And, especially given the many unknowns in the present state of the art about how to interpret the sensing of raw magnetic

5 fields generated by a patient's heart activity, the automated development of such expert rules, in and of itself, is also a highly practical, useful, concrete, tangible, and important result.

This amendment has clear support, at the very least, on

10 page 4, line 32 of applicant's original disclosure, which states: "The ultimate aim of machine learning in the context of cardiac diagnosis is to be able to *identify meaningful features that can . . . allow the formulation of expert rules . . .*"

As such, this rejection is now overcome.

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Claim Rejections – 35 USC § 102

Amendments made herein to independent method claim 1 and independent apparatus claim 38 overcome the rejection based on Jeanguillaume in several ways.

20 First, applicant's claim are amended now recite *magnetocardiography* data, and the starting point for these claims is "sensed data acquired from sensors sensing *magnetic fields generated by a patient's heart activity*." Jeanguillaume, in contrast, uses an imaging system which detects contrast

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agents injected in diagnostic amounts into a human or animal, and so is sensing *radiation* rather than *magnetic fields*, and is sensing radiation *generated by the injected contrast agents* rather than "magnetic fields *generated by a patient's heart*

5 *activity*."

Second, dependent claims 2 and 39 are cancelled, and essentially merged into claims 1 and 38. Thus, as amended, the independent claims specify "applying a *wavelet transform* to sensed data acquired from . . . a patient's heart activity,

10 resulting in wavelet domain data." Notwithstanding the rejection of claims 2 and 39 based on Jeanguillaume, the wavelet transform is *not* a Fourier transform as disclosed in Jeanguillaume. The actual kernel transform of applicant's amended claims, is now recited to be applied to the wavelet

15 domain data. The combination of using a wavelet transform followed by a kernel transform, as well using as the wavelet transform itself, is simply not anticipated or rendered obvious by Jeanguillaume.

These amendments all have clear support in applicants'

20 original disclosure.

As a result of the foregoing, the prior art rejection based on Jeanguillaume is traversed, so that independent method claim 1 and independent apparatus claim 38 are now allowable over all prior art of record. The remaining claims are also now

allowable, based on their dependency upon allowable claims 1 and 38, and also based on the additional points of patentable distinctness which they each recite.

Miscellaneous Amendments

All dependent claims have been amended as necessary to reflect the independent claim amendments.

At applicants' initiative, all language in the method claims reciting "step(s) of" has been removed.
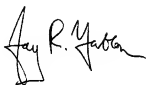
Conclusion

As a result of the foregoing, all pending rejections are overcome, and applicants respectfully request and looks forward to a notice of allowance in the near future.

If this reply does not result in allowance of all claims, applicants' counsel hereby respectfully requests a telephone interview with examiner George C. Manuel, following receipt of this reply, and prior to issuance of any further office actions.

Respectfully submitted,

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